

CLAIMS:

1. A heat exchanger device for use with a catalytic heater having a heat radiating surface, the device comprising:

an inlet header and an outlet header, each for receiving heat
5 exchanger fluid therethrough;

at least one heat exchanger tube for communicating the heat exchanger fluid between the inlet header and the outlet header; and

a frame for supporting the headers and said at least one heat exchanger tube on the catalytic heater such that said at least one heat exchanger
10 tube extends across the heat radiating surface of the catalytic heater.

2. The device according to Claim 1 wherein the frame is arranged to support the inlet and outlet headers to span the heat radiating surface of the catalytic heater.

3. The device according to Claim 1 wherein there is provided a
15 plurality of heat exchanger tubes communicating between the inlet and outlet headers.

4. The device according to Claim 1 wherein there is provided a pump for circulating the heat exchanger fluid including an inlet coupled to the outlet header and an outlet coupled to the inlet header.

20 5. The device according to Claim 4 wherein there is provided a surge tank communicating between the pump outlet and the inlet header, the surge tank being spaced above communication thereof with the inlet header.

6. The device according to Claim 5 wherein the surge tank includes a vent for maintaining the surge tank at atmospheric pressure.

25 7. The device according to Claim 1 wherein the inlet header includes an inlet opening for receiving the heat exchanger fluid adjacent a bottom

end of the device and the outlet header includes an outlet opening for releasing the heat exchanger fluid adjacent a top end of the device.

8. The device according to Claim 1 wherein there is provided a probe of heat conductive material supported for communication with the heat exchanger fluid passing through the device, the probe being arranged to be coupled to a thermostatic element of the catalytic heater.

9. The device according to Claim 1 wherein there is provided a temperature gage in communication with heat exchanger fluid adjacent both the inlet header and the outlet header.

10. A heating system comprising a catalytic heater having a heat radiating surface and a heat exchanger comprising:

an inlet header and an outlet header, each for receiving heat exchanger fluid therethrough;

at least one heat exchanger tube communicating between the inlet header and the outlet header; and

a frame supporting the headers and said at least one heat exchanger tube on the catalytic heater such that said at least one heat exchanger tube extends across the heat radiating surface of the catalytic heater;

and a fluid circulating system for circulating the heat exchanger fluid through the heat exchanger and a target area to be heated.

11. The system according to Claim 10 wherein the heat exchanger spans substantially the entire heat radiating surface of the heater.

12. The system according to Claim 10 wherein the heater includes a thermostatic control having a thermostatic element in communication with the heat exchanger fluid adjacent the inlet header.

13. The system according to Claim 10 wherein there is provided a

pump for circulating the heat exchanger fluid including an inlet coupled to the outlet header and an outlet coupled to the inlet header.

14. The system according to Claim 10 wherein the frame includes a generally rectangular housing supporting the headers and said at least one heat exchanger tube therein, the housing being coupled to the catalytic heater by threaded fasteners.

15. The system according to Claim 14 wherein the frame of the heat exchanger is similar in dimensions to the heat radiating surface of the catalytic heater.

10 16. A method of heating a target area comprising:
providing a catalytic heater having a heat radiating surface;
providing a heat exchanger having an inlet header, an outlet header and at least one heat exchanger tube communicating between the inlet header and the outlet header;
15 supporting said at least one heat exchanger tube to extend across the heat radiating surface of the catalytic heater; and
circulating heat exchanger fluid through the heat exchanger and the target area.

17. The method according to Claim 16 including connecting a thermostat operating the catalytic heater to the heat exchanger in communication with the heat exchanger fluid circulated therethrough.

18. The method according to Claim 16 wherein the heat radiating surface lies in a radiating plane of the heater and wherein the method includes providing a plurality of heat exchanger tubes to span substantially the entirety of the heat radiating surface of the catalytic heater parallel to the radiating plane of the heater.

19. The method according to Claim 16 including:
providing a surge tank in communication with the inlet header;
pumping the heat exchanger fluid from the outlet header, through the
target area, to the surge tank;
- 5 locating the surge tank above communication of the surge tank with
the inlet header; and
 venting the surge tank to atmospheric pressure.
20. The method according to Claim 16 wherein the catalytic heater
comprises a Cata-Dyne™ heater.